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| **Classification:** Mechanical Engineer | **Position No.** 5600-3583-004 |
| **CBID:** R09 | **Office:** Energy Generation Research |
| **Date Prepared:** February, 2012 | **Division:** Energy Research and Development |
| **KEY: (E) IS ESSENTIAL, (M) IS MARGINAL** | |

Under the general supervision of the Energy Commission Supervisor II and the Energy Commission Specialist III in the Energy Generation Research Office, the incumbent provides engineering support to the Environmental Area Team. The incumbent conducts technical analyses and assists in the development of research engineering projects funded by the Energy Commission (Commission) on climate change. The incumbent contributes with engineering skills to an interdisciplinary team and assists the management with program planning and implementation of projects addressing energy policy.

With funding of $80 million each year, the goal of the PIER Program is to conduct research, development and demonstration to advance science and technologies not adequately provided by the regulated and competitive markets. Energy related climate change research requires a broad expertise on power generation and the energy system in general. For this reason, the incumbent is knowledgeable of multiple aspects of engineering such as energy/mass balances, thermodynamics, fluid mechanics, combustion, strength/properties of materials, statistical analyses, testing of equipment, and interpretation of technical codes and standards.

**WORKING CONDITIONS**:

The work involves sitting, standing, and walking and is performed in an indoor office and meeting room setting and alternatively on-site or in-field at project sites. The candidate must work well with people inside and outside the Commission, including policy-makers and members of the general public. Travel is required to attend site inspections, workshops, hearings and meetings. Additional hours beyond an eight-hour workday or forty-hour workweek may be required. While performing the duties described below, the incumbent will be required to work alone and/or in a team environment, using a personal computer and appropriate Commission software such as word processing, scientific/engineering programs, electronic mail and Internet and participate in and lead meetings with other staff and with other agencies. The incumbent may be also required to use complex software tools to perform engineering analyses.

**DUTIES AND RESPONSIBILITIES:**

30% Provide engineering analysis and technical support including planning and organizing engineering projects on climate change. The projects for which the incumbent is responsible involve technical engineering issues relating to the energy system including components of the natural gas and electricity systems. In addition, the incumbent has a good technical expertise in the engineering aspects of energy efficiency, HVAC, furnaces, steam boilers, engines, gas turbines, and similar technologies. The incumbent analyzes assessments of key engineering issues affecting the energy sector including evaluations and analysis of energy/environmental trends and drivers, technological responses, identification of

engineering problems, possible engineering solutions, and recommendations for research initiatives sponsored by the Commission. The incumbent establishes research project design/scope; task descriptions; test plans and protocols; and the content of final products. Subjects typically requiring engineering analysis include, but are not limited to, the following research areas:

- Assist in the management of large multiyear projects involving the development of regional climate models and climate projections designed to estimate how climate change would affect the energy system. This work requires high level of expertise on fluid mechanics, numerical methods, energy balances, and other engineering disciplines.
- Assist in the study of complex engineering issues relating to the potential effects of climate change on the energy system and the development of engineering adaptation/coping strategies. For example, the effect of high temperatures on the thermal and mechanical performance of power plants, cooling systems, transmission lines, transformers, and the performance of end use energy devices.
- Assist in the management of large–scale field studies on engineering aspects affecting the technical performance or environmental characteristic of different parts of the energy system on topics related to climate change. For example, the incumbent may be involved with studies on engineering emission testing of the different components of the natural gas system such as natural gas compressors, pneumatic control devices, dehydrators, and transmission and distribution lines to determine the amount of fugitive methane emissions being released and lead the studies needed to reduce these emissions.
- Assist with the management of engineering projects involving the evaluation of options to reduce net greenhouse emissions from the electricity and natural gas system.

30% Conduct engineering research projects including evaluating performance, quality control/assurance, reviewing interim research products (e.g. results of surveys, test results, design drawings, etc); evaluating technical changes to project budget/scope; and reviewing/approving final products from completed projects. (E)

15% Engage public and private entities addressing energy related climate change research and related issues important to the Commission. This function requires the incumbent to effectively communicate research to other engineers, researchers and the public at large, requiring both a good degree of technical knowledge and expertise and sensitivity to policy issues. In addition to technical proficiency, this liaison responsibility may include assisting with interactions and detailed negotiations with other projects or programs both internally and externally, including national organizations such as the US Department of Energy (DOE), US Environmental Protection Agency (EPA), American Gas Association, the US Global Change Research Program, Air Resources Board (ARB), and Air Districts and Investor Owned Utilities (IOUs). (E)

10% Perform engineering assessments, and provide technical advice and expert testimony relating to climate change effect on mechanical systems including: heating and air conditioning (HVAC), furnaces, steam boilers, engines, gas turbines and other energy technologies for senior and executive managers, Commissioners and decision-makers and in the preparation of key policy documents such as the Integrated Energy Policy Report. (E)

5% Participate in technical scoring committees and provides his/her engineering expertise in reviewing proposals to determine how well the project addresses the scope of the solicitation criteria. (E)

5% Other duties as required consistent with the classification. (M)

| **SIGNATURES** | |
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| **I Certify That I Am Able To Perform, With Or Without The Assistance Of A Reasonable Accommodation, The Essential Job Duties Of This Position** | |
| Vacant Date | Erik Stokes Date<br>Energy Commission Supervisor II |